

Understanding the impact of disasters and climate displacement on food and water security in Pakistan

A case study of Rahim Yar Khan, Punjab

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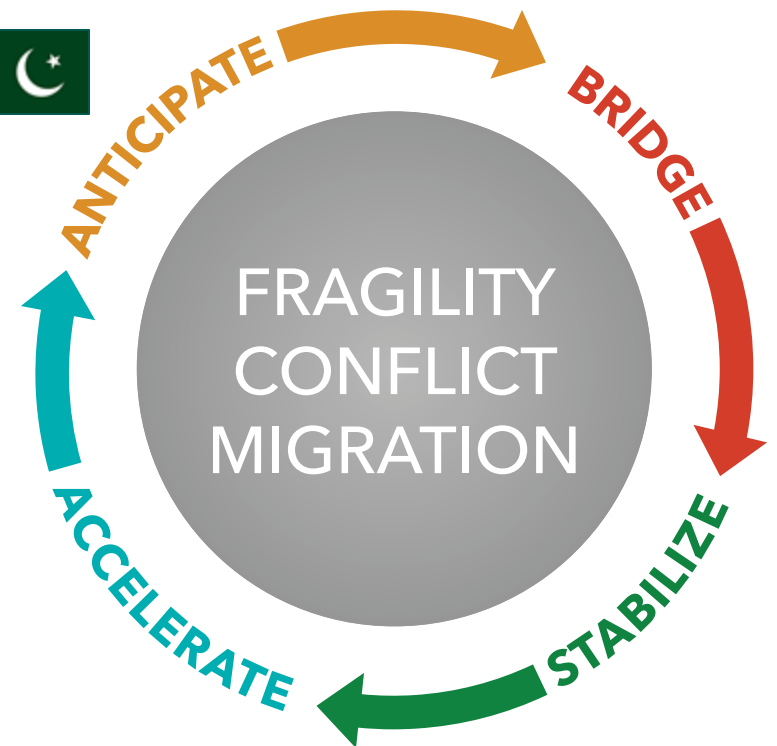
Study Context

- Context/Challenge: Fragile and conflict-affected settings (FCASs) often struggle to sustain resilient food, land, and water systems (FLWSs) in the face of the climate crisis.
- FCM Objectives
 - Enhance the resilience of FLWS and conflict-affected settings, where migration-related challenges are prevalent;
 - Understand the root causes of disasters, risks, drivers, and dynamic pressures.
 - **Generate evidence on effective policies and programming before, during, and after shocks and crises.**



INITIATIVE ON

Fragility, Conflict,
and Migration



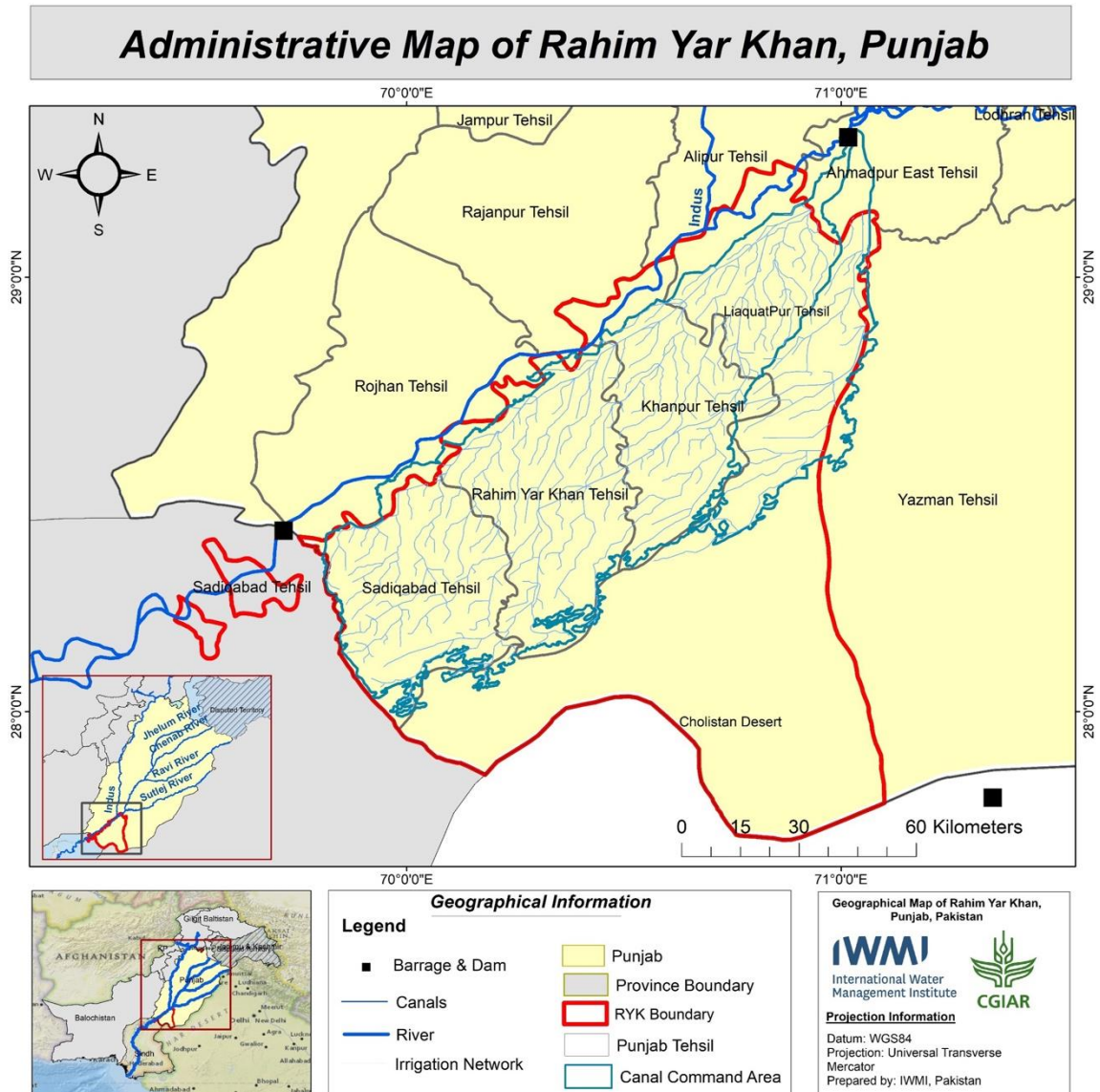
Pakistan Case Study

- Pakistan highly vulnerable to climate change, disasters and water and food insecurity (Top 10 countries)
 - 173 climate extreme events between 2000-2019
 - Predicted to reach water scarcity by 2025
- Under FCM, assess vulnerabilities of migrant/IDP communities and climate-induced migration challenges to improve disaster response mechanisms
- Floods caused 1.2 million displacements in South Asia in 2023, with Pakistan accounting for 647,000 displacements, more than half (IDMC 2024).
 - As of 2023, Pakistan has around 1.2 million IDPs from disasters (second largest in the South Asia region)
- First study of its kind capturing challenges of climate-induced migrant communities' vulnerabilities

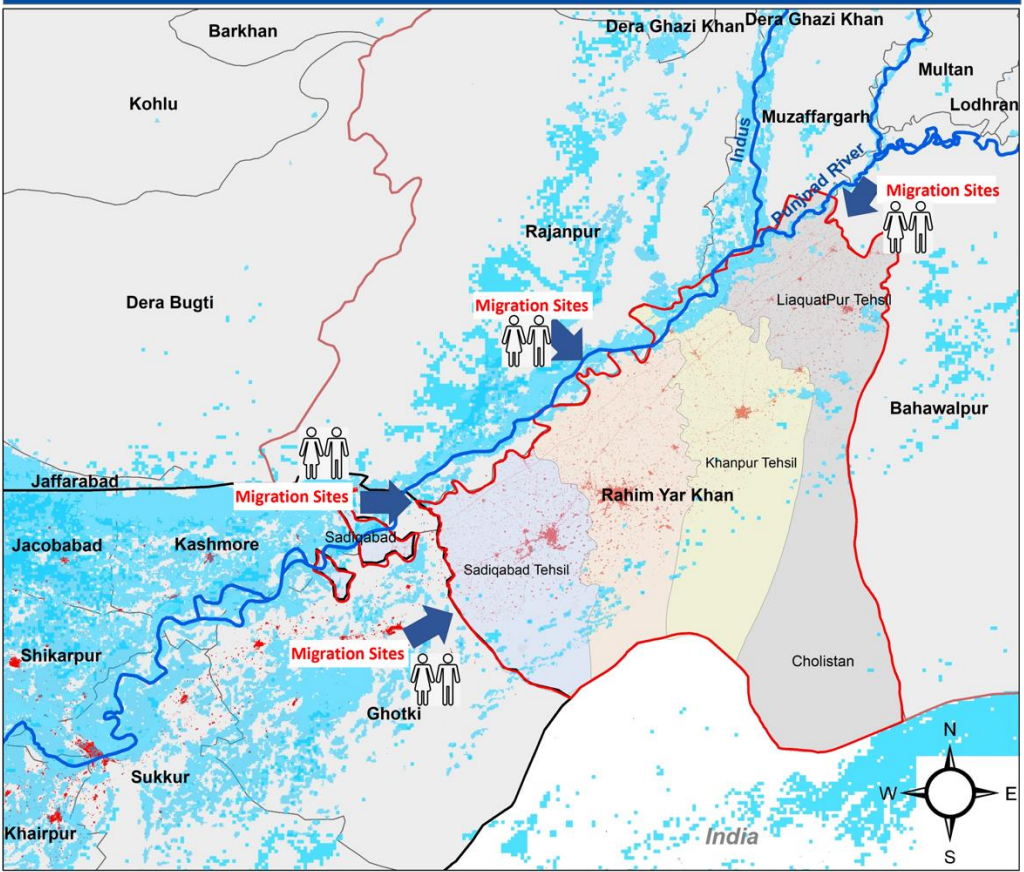
Damages	2022 Flood
Area Hit	33 percent
People Affected	33 million
Deaths	1,700
Houses Lost/Damaged	1.7 million
Crops Damaged	8.3 million acres
Livestock Lost	1.1 million
Monetary Damages	Over USD 15 billion in damages; USD 15 billion in losses and USD 16 billion needs estimate

Case Study Location

- District Rahim Yar Khan (comprised of 4 tehsils/administrative divisions and Cholistan Desert)
 - Located in South Punjab, neighboring Sindh Province
- Located in South Punjab, neighboring Sindh province and other Punjab districts
 - RYK susceptible to floods, drought, locust attacks and resulting health impacts (water-borne illnesses, malnutrition)
 - Serves as both disaster affected community and host community for neighboring areas (unique case study)



Flood Mapping - 2022 in Rahim Yar Khan (RYK) Pakistan



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Legend

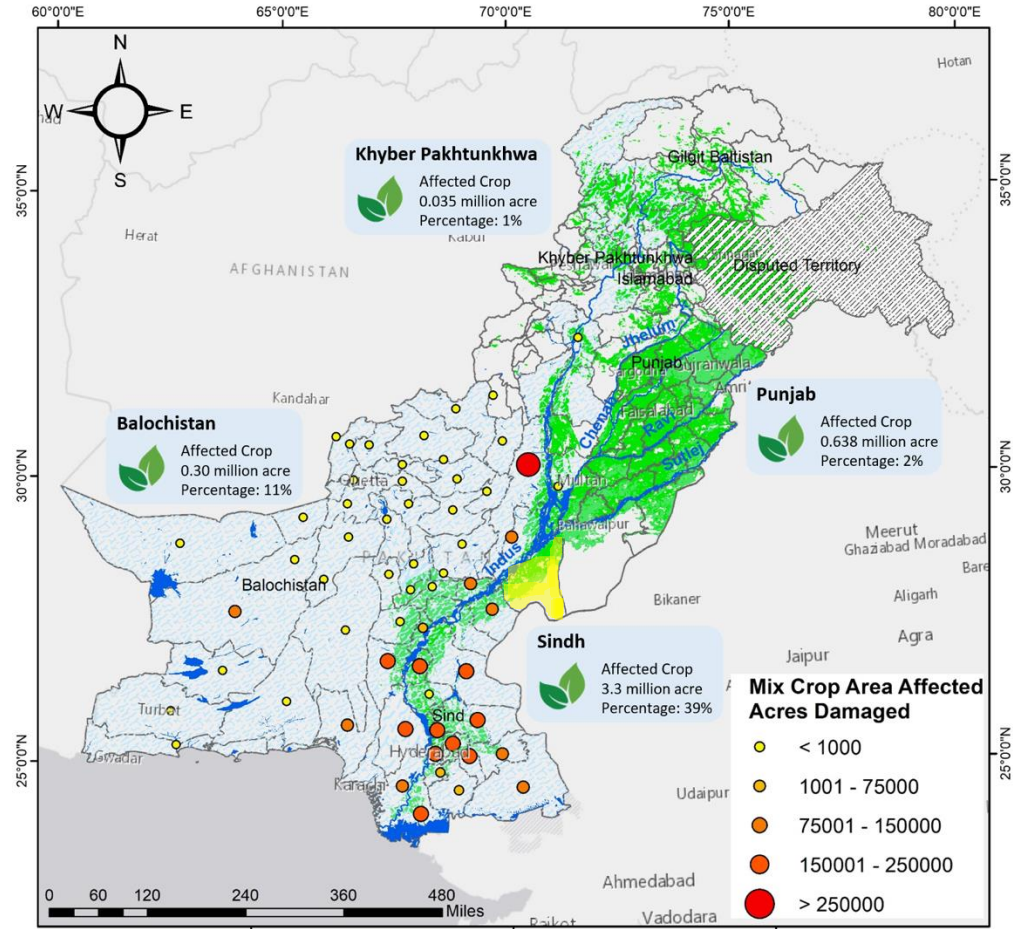
- River
- Rahim Yar Khan
- Sindh
- Punjab
- Flood Extent
- Sadiqabad Tehsil
- RahimyarKhan Tehsil
- LiaquatPur Tehsil
- Khanpur Tehsil
- Settlements
- Districts

Data Source

Satellite Images: Sentinel 1; August 2022
Description:
This map shows the detected flood area in Sindh and Punjab including Rahim Yar Khan. This product is developed by IWMI

0 12.5 25 50 Kilometers

Flood in Pakistan 2022, District Wise Crops Affected Area



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Projection Information
Datum: WGS84
Projection: Universal Transverse Mercator
Prepared by: IWMI, Pakistan
Data Source: Food and Agriculture Organization of United Nations

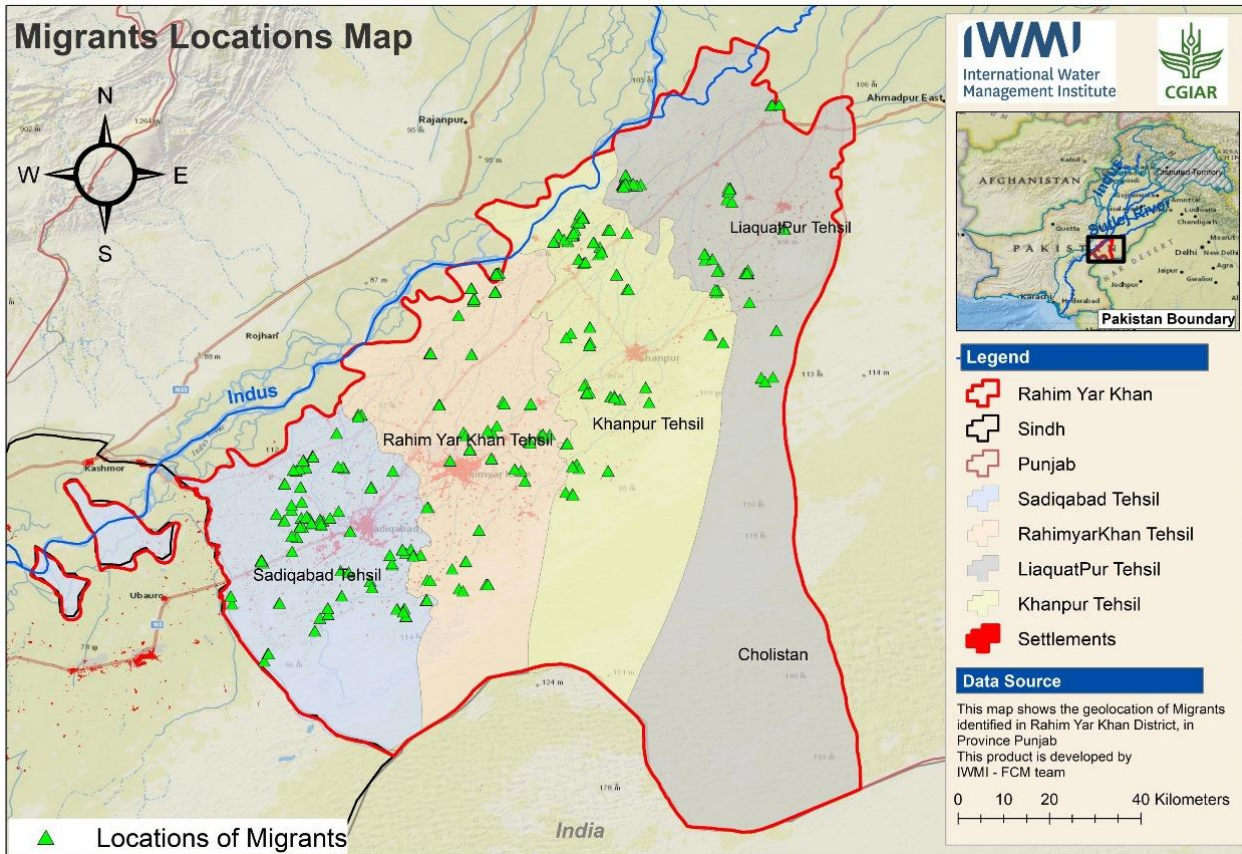
- Water Areas
- Flood Calamity Affected District
- District Boundary
- Disputed Territory
- Irrigated & Rainfed Crops

Methods

- Scoping of district of identify climate migrant communities
 - Multi-stage random sampling guided by the Sampling Guide for Displacement Situations Manual (JIPS 2020), and the Compilers' Manual on Forced Displacement Statistics (EGRISS 2023)
 - UNICEF's (2024) Multiple Indicator Cluster Survey (MICS) sampling (**n=826; 322 women, 504 men**)
- District survey complemented with KIIs and FGDs
 - 12 FGDs (7 women's and 5 men's)
 - 43 KIIs across district, province and federal level



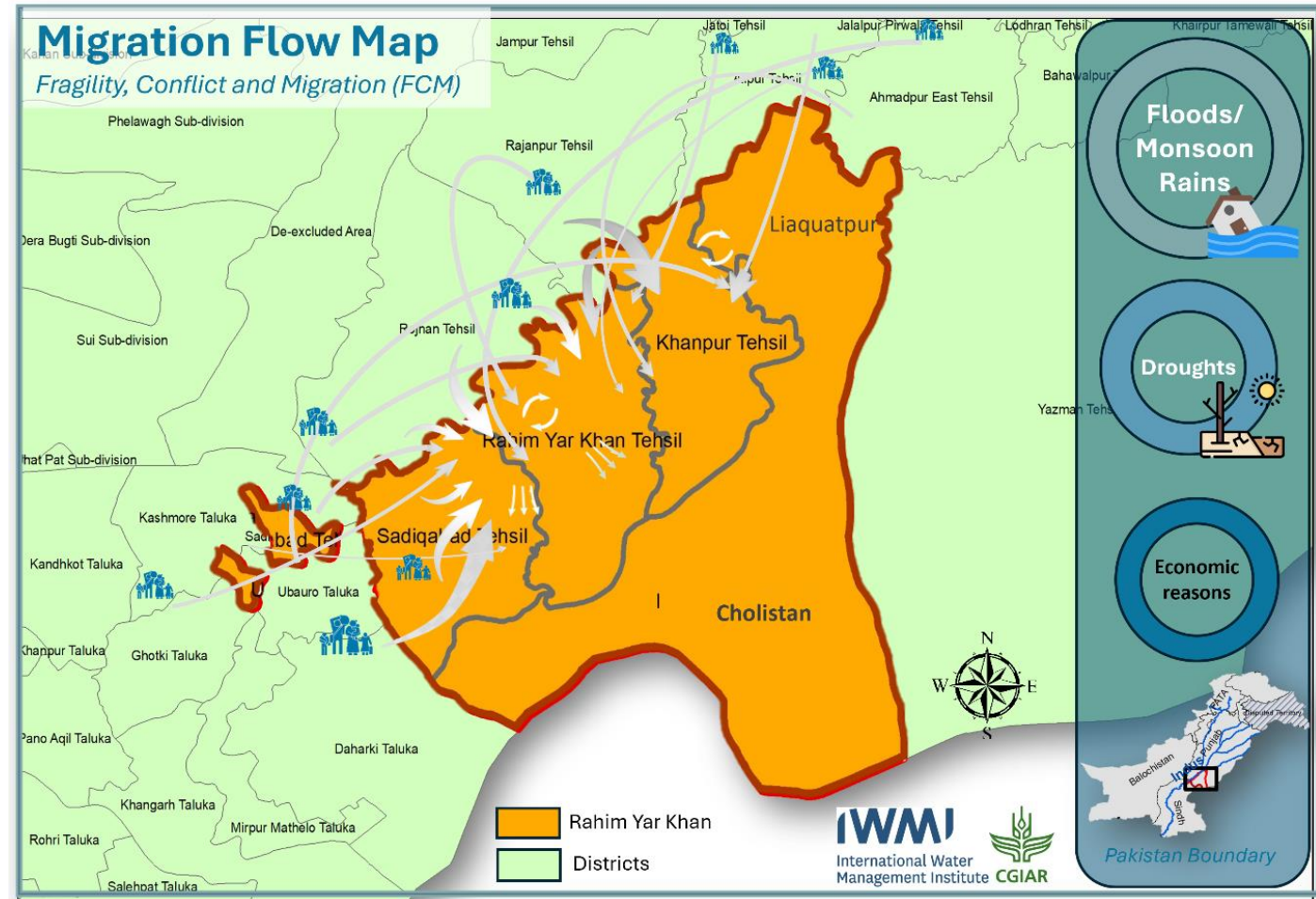
Findings



Socio-demographic characteristic	% Men (n=504)	% Women (n=322)	% Total (n=826)
Marital status			
Single	0.4	0	0.2
Married	99	91	96
Divorced	0.2	1	1
Widowed	0.4	7	3
Household (HH) head			
Self	84	10	55
Spouse	0	32	12
Self and spouse equally	13	41	24
Male relative	2	16	7
Female relative	1	1	1
Education			
Never attended school	77	93	83
Up to grade 5 completed	12	4	9
Grade 6 to 10 completed	7	1	5
FA/F.Sc (grade 11 and 12)	1	0	0.5
Madrasah (religious education)	3	2	2
Bachelors and above	0.6	0.6	0.6
Occupation			
Contributing family worker	0	13	5
Employed with daily wages	76	27	57
Employed with monthly salary	9	1	6
Homemaker	0	54	21
Self-employed/own business	11	3	8
Unemployed	21	2	23

Findings

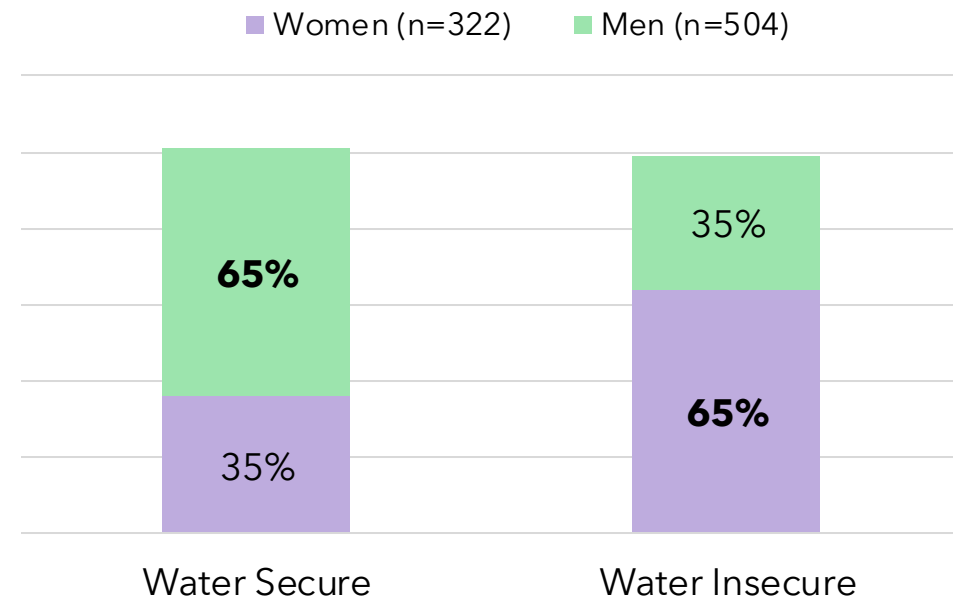
- Primary driver of migration or displacement was floods (98%) (minority reported droughts or economic factors (2%))
- Majority migrated or were displaced from other districts in Punjab province (41%), within RYK (40%) or from Sindh province (18%) and minority from KP or Balochistan (0.5%)



Water Insecurity (IWISE Scale)

- **IWISE Tool** (Young et al. 2021) used in survey to assess water insecurity levels
 - 12-item validated tool to measure personal experiences of water insecurity scored on a range of 0-36
 - Score of 12 or above indicates water security
- Overall, **54% respondents are water secure while 46% are water insecure.**
- Sex-disaggregated analysis indicates that women are more water insecure than men across the district

Water insecurity of men and women climate migrants across District RYK



Food Insecurity (FIES)

- FIES 8-item Tool (FAO) to measure severity of food insecurity
- None of the climate migrant respondents were categorized as food secure or mildly food insecure

During the flood, we survived on the relief food provided. Children were often fed with soaked bread, and they were frequently hungry. There was a shortage of food, and people struggled to find affordable items. The rates of commodities doubled after the flood. Now, with PKR 6,000 (USD 21.58), you can only buy what used to cost PKR 2,000 (USD 7.19). (Women's FGD, Cholistan, Liaquatpur)

Food Insecurity Prevalence Across Tehils (% households)

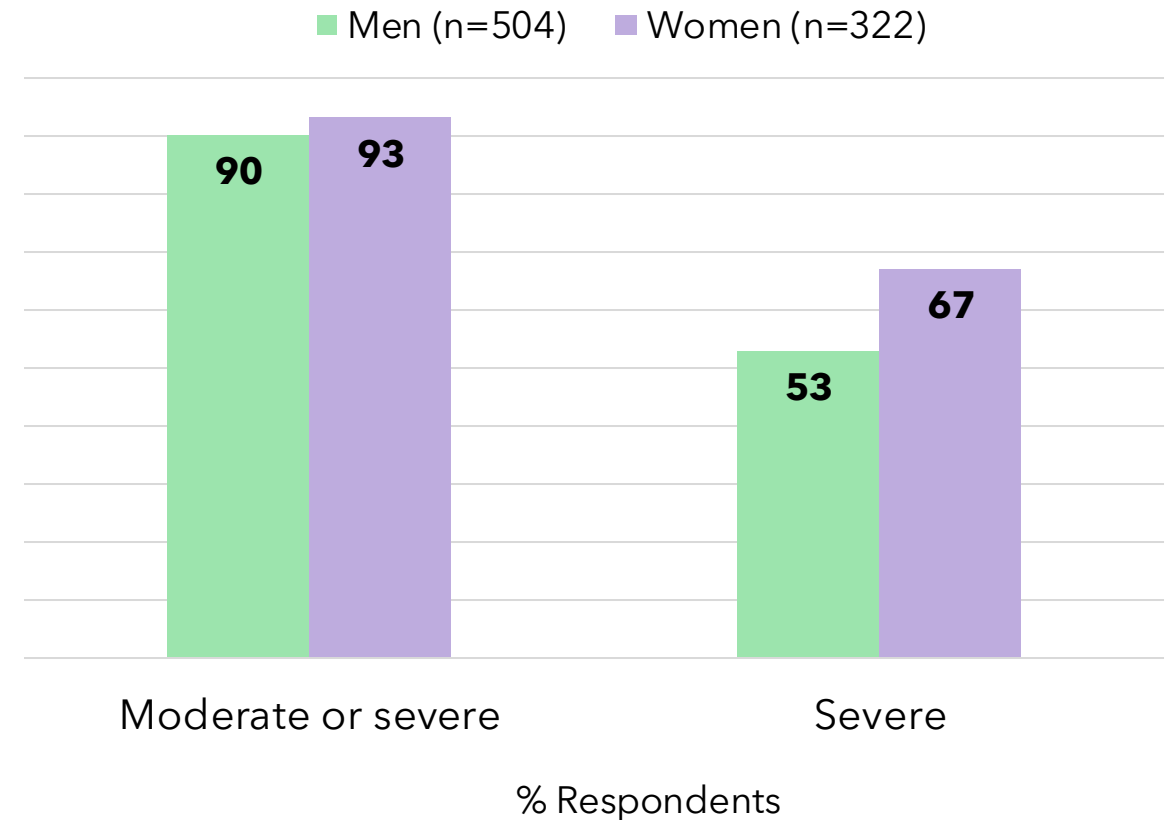
	Moderate or severe (%)	Severe (%)
Combined district (n=826)	90.87	60.19
Khanpur (n=175)	91.96	59.09
Liaquatpur (n=167)	87.25	52.86
Rahim Yar Khan (n=244)	87.19	56.63
Sadiqabad (n=193)	88.23	55.58
Cholistan Desert (n=47)	86.32	51.68

Food Insecurity (FIES)

- Women are more food insecure than men, experiencing higher prevalence of moderate or severe and severe food insecurity



Food Insecurity prevalence of men and women across District RYK



Water quality and health

- RYK faces issues of poor water quality (high arsenic, TDS, nitrate and fluoride levels)
- Floods exacerbated poor water quality and prevalence of water-borne diseases exacerbated
- **High prevalence of diarrhea (80%), gastroenteritis (60%), typhoid (54%), skin irritation/rashes (51%) and cholera (45%) among migrant and displaced communities**
- **Women had higher reported prevalence** of diarrhea, Hepatitis A, typhoid, malaria, gastroenteritis, cholera and skin irritations/rashes as compared to men and young boys and girls
- Issues with Menstrual Hygiene Management (MHM), including lack of water, infections and privacy issues

*The flood had shocking effects on health. The contaminated water caused various illnesses, and **people suffered from infections, fevers, hepatitis and itching.** Some even had complications during pregnancy due to the lack of proper nutrition. The water in the rivers, which used to be a source of drinking water, became polluted during the flood. (Men's FGD, Sadiqabad)*



Implications

- Links between climate change and migration are missing from policies/plans in Pakistan
- **Gender plays a significant role** in affecting water and food insecurity and should be considered in policy and planning (and women are more vulnerable to disasters)
- Communities most vulnerable to climate change and the impacts of disasters were likely already experiencing water and food insecurity before the floods struck.
 - These populations, already facing significant socio-economic challenges, were predisposed to water and food insecurity, and the floods intensified the severity (with women feeling harsher impacts)
- Before migration/displacement, majority of men and women were already in the poor and poorest wealth quintiles – **this became worse after the floods**
- Results point to pronounced worsening of economic conditions following migration or displacement, highlighting the need to address not only immediate humanitarian needs but also **long-term economic resilience and adaptation strategies** for climate-displaced populations.

Implications

- **Key issues in Pakistan's disaster response context:** infrastructure deficiency, inadequate access to health and sanitation, economic vulnerability, poor planning and coordination in disaster response efforts, high prevalence of water and food insecurity
- **Key recommendations:**
 - 1) Improve accessibility to essential services
 - 2) Support climate-resilience agriculture and water management (Disaster Management Authorities need collaboration with Irrigation Departments (On Farm Water Management))
 - 3) Map climate-induced migration patterns and water and food insecurity trends for targeted support to vulnerable populations (including developing migration/displacement database)
 - 4) Integration of climate migration challenges into national policies and frameworks (e.g., National Water Policy, National Adaptation Plan, National Climate Change Policy, and relevant disaster management policies)

Thank you!

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